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| 10/698,988 | 10/31/2003 | Brian M. Sager | NSL-014 | 8858 |
| 27652 | 7590 | 01/25/2010 | EXAMINER | |
| JOSHUA D. ISENBERG | | | PATTERSON, MARC A | |
| JDI PATENT | | | | |
| 809 CORPORATE WAY | | | ART UNIT | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/698,988

Applicant(s)

SAGER ET AL.

Examiner

MARC A. PATTERSON

Art Unit

1794

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 October 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-17, 19-22, 25, 26 and 28-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12-17, 19-22, 25, 26 and 28-38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

WITHDRAWN REJECTIONS

1. The 35 U.S.C. 103(a) rejection of Claims 12 - 17, 19 - 26 and 28 - 38 as being unpatentable over Brinker et al (U.S. Patent No. 6,264,741 B1) in view of Dams (European Patent No. 1225188) and Burrows et al (U.S. Patent No. 6,866,901 B2) of record on page 2 of the previous Action, is withdrawn.

Claim Rejections – 35 USC § 103(a)

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 12 - 17, 19 - 26 and 28 - 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brinker et al (U.S. Patent No. 6,264,741 B1) in view of Dams (European Patent No. 1225188) and Burrows et al (U.S. Patent No. 6,866,901 B2) and Fujimori et al (U.S. Patent No. 6,727,513 B2).

With regard to Claims 12 - 13, 16 - 17, 19, 25, 28 - 30, 34 - 36 and 38, Brinker et al discloses an inorganic / organic (column 3, lines 9 - 10) nanolaminate (column 3, line 30) film (column 3, line 66) which has a plurality of layers of an inorganic material (silicate layers, therefore discrete layers comprising multiple layers or lamellae and consisting of silicate and having a different composition from a polymer layer; column 4, line 30) and a plurality of layers each consisting of an organic polymer (column 4, lines 63 - 64), therefore hydrophobic, wherein,

the layers of organic polymer alternate with the layers of inorganic material (column 3, lines 15 – 20) wherein the adjacent layers of the film are covalently bonded layers characterized by direct organic polymer - inorganic material covalent bonds (column 5, lines 33 - 35); the inorganic material therefore presents a long and tortuous path to an underlying substrate (tortuous path; column 5, lines 13 - 15); the organic material is hydrophobic (column 3, lines 15 - 20) and the film is a coating (column 3, line 51) the film is therefore a barrier film; the film comprises a hydrophobic compound (column 4, lines 20 - 25), and therefore has a tuned hydrophobicity that decreases the permeability of the film relative to a film that is hydrophilic; the film has between 100 and 1000 layers (column 3, line 44 - 46); Brinker et al also disclose self- assembly of nanostructures (column 3, lines 3 - 8); Brinker et al also disclose micelle formation and incorporation of polymer precursors into the micellar interiors (column 5, lines 15 - 24). Brinker et al fail to disclose layers that contain superhydrophobic material and comprise fluoroalkylsilane and a solar cell encapsulated with the film.

Dams teaches a monomer comprising fluoroalkylsilane (paragraph 0008), therefore superhydrophobic, for a coating (paragraph 0052) for the purpose of obtaining a coating that is oil repellent (paragraph 0011). One of ordinary skill in the art would therefore recognize the advantage of providing for the monomer of Dams et al in Brinker et al, which comprises a coating, depending on the desired use of the end product.

Burrows et al teach a solar cell (column 5, lines 29 - 30) encapsulated with a barrier film (barrier stack; column 5, lines 44 - 49) for the purpose of obtaining protection from moisture, gas and contaminants (column 5, lines 22 - 25). One of ordinary skill in the art would therefore

recognize the advantage of providing for the encapsulation of Burrows et al in Brinker et al, which comprises a solar cell, depending on the desired protection of the end product.

It therefore would have been obvious for one of ordinary skill in the art to have provided for a one or more superhydrophobic layers comprising fluoroalkylsilane in Brinker et al in order to obtain a layer that is oil repellent as taught by Dams and to have provided for encapsulation of a solar cell in Brinker et al in order to obtain protection from moisture, gas and contaminants as taught by Burrows et al.

Brinker et al, Dams and Burrows et al do not establish that it is physically possible to form a self - assembled film using a superhydrophobic monomer, but Fujimori et al teach a self - assembled film (column 3, line 26) comprising fluoroalkylsilane (column 3, lines 45 - 49). Fujimori et al therefore establishes that it is known in the art that it is physically possible

With regard to Claim 14, Brinker et al disclose a nanolaminate, as stated above, and therefore disclose layers of organic material having a thickness of 1 nm.

With regard to Claim 15, the film disclosed by Brinker et al is transparent (column 3, line 50).

With regard to Claims 20 - 21, the layers disclosed by Brinker et al are hydrophobic, as stated above, and therefore comprise layers made from polymer precursors to which a hydrophobic group comprising methyl has been added.

With regard to Claims 22, 26 and 31 - 33, Brinker et al disclose a Gemini surfactant (column 4, lines 45 - 46) and tubules (column 8, line 6) and layers which are self assembled (column 5, lines 7 - 31).

With regard to Claims 23 - 24, the film disclosed by Brinker et al is utilized a coating, as stated above; Brinker et al therefore disclose an article of manufacture having the film disposed on the surface.

With regard to Claim 37, a solar cell, therefore a photovoltaic device, having an inorganic layer in contact with the photovoltaic device, would therefore be disclosed by Brinker et al.

ANSWERS TO APPLICANT'S ARGUMENTS

4. Applicant's arguments regarding the 35 U.S.C. 103(a) rejection of Claims 12 - 17, 19 - 26 and 28 - 38 as being unpatentable over Brinker et al (U.S. Patent No. 6,264,741 B1) in view of Dams (European Patent No. 1225188) and Burrows et al (U.S. Patent No. 6,866,901 B2), of record in the previous Action, have been considered and have been found to be persuasive. The rejection is therefore withdrawn. The new rejection above is therefore directed to Claims 12 - 17, 19 - 22, 25 - 26 and 28 - 38.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marc A Patterson whose telephone number is 571-272-1497. The examiner can normally be reached on Mon - Fri 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on 571-272-1498. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Marc A Patterson/
Primary Examiner, Art Unit 1794